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CLAIMS

We Claim:

- 1. A process for reducing naphthalene concentration in a naphthalene containing aromatic fluid, the process comprising hydrogenating at least a portion of the naphthalene in the presence of a Group VIII metal catalyst at a temperature from 50 °C to 110 °C to form tetrahydronaphthalene.
- 2. The process of claim 1 wherein the tetrahydronaphthalene is further hydrogenated to decahydronaphthalene.
- 3. The process of claim 1 wherein the metal catalyst comprises palladium.
- 4. The process of claim 1 wherein the metal catalyst is supported.
- 5. The process of claim 4 wherein the support is selected from alumina, carbon, silica, and mixtures thereof.
- 6. The process of claim 5 wherein the metal catalyst comprises palladium on an alumina support.
- 7. The process of claim 6 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on an alumina support.
- 8. The process of claim 7 wherein the metal catalyst comprises 0.1 wt% to 1.0 wt% palladium on an alumina support.
- The process of claim 5 wherein the metal catalyst comprises palladium on a carbon support.
- 10. The process of claim 9 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on a carbon support.

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- 11. The process of claim 10 wherein the metal catalyst comprises 0.1 wt% to 1.2 wt% palladium on a carbon support.
- 12. The process of claim 5 wherein the metal catalyst comprises palladium on a silica support.
- 13. The process of claim 12 wherein the metal catalyst comprises 0.01 wt% to 25 wt% palladium on a silica support.
- 14. The process of claim 13 wherein the metal catalyst comprises 0.1 wt% to 1.0 wt% palladium on a silica support.
- 15. The process of claim 1 wherein the hydrogenation occurs at a temperature from 90 °C to 105 °C.
- 16. The process of claim 1 wherein the hydrogenation occurs at a pressure from 100 psig to 3500 psig.
- 17. The process of claim 16 wherein the hydrogenation occurs at a pressure from 250 psig to 500 psig.
- 18. The process of claim 1 wherein the hydrogenation occurs in a reactor selected from a fixed bed reactor and a batch reactor.
- 19. The process of claim 1 wherein the naphthalene containing aromatic fluid comprises from at least 0.2 wt% naphthalene.
- 20. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 0.5 wt% to 35 wt% naphthalene.
- 21. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 1 wt% to 30 wt% naphthalene.

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- 22. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 5 wt% to 15 wt% naphthalene.
- 23. The process of claim 19 wherein the naphthalene containing aromatic fluid comprises from 8 wt% to 12 wt% naphthalene.
- 24. The process of claim 1 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 85%.
- 25. The process of claim 24 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 95%.
- 26. The process of claim 25 wherein naphthalene conversion to tetrahydronaphthalene is greater than from 99%.
- 27. The process of claim 1 wherein selectivity to tetrahydronaphthalene is greater than from 80%.
- 28. The process of claim 27 wherein selectivity to tetrahydronaphthalene is greater than from 85%.
- 29. The process of claim 28 wherein selectivity to tetrahydronaphthalene is greater than from 95%.
- 30. The process of claim 29 wherein selectivity to tetrahydronaphthalene is greater than from 98%.

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